

Remarks

Claims 1-23 are currently pending.

Amendments to the Claims

Claims 24-27 have been cancelled, as they are drawn to non-elected subject matter.

Restriction Under 35 U.S.C. §§ 121 and 372

As decided in a telephone conversation on January 12, 2009, the Applicants elect, with traverse, to prosecute the invention of Group I (claims 1-23). Applicants traverse the restriction requirement because the examination of the inventions in a single application would not create a serious burden on the Examiner. Therefore, Applicants request reconsideration of the restriction requirement. Despite the cancellation of claims 24-27, no amendment of inventorship is necessary.

Rejections Under 35 U.S.C. § 102

Claims 1-23 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,840,862 to Bensimon et al. (hereinafter "Bensimon"). The Applicants respectfully traverse the rejection.

The method of Bensimon consists of two steps. First, a part of a molecule, preferably a terminal portion, is anchored to the surface of a substrate. The remainder of the molecule exists freely in a solution. The substrate may contain a plurality of anchored molecules. Second, the anchored molecules are aligned uniformly by the passing of a meniscus, as illustrated in Bensimon's Figure 6. During this step, the unanchored portions of the molecules on the substrate are aligned perpendicularly to the passing meniscus.

Bensimon does not, however, disclose a method that allows at least a part of any molecule to be dislocated in an adsorbed state. The anchored portions of the molecules in Bensimon may not be altered. In contrast, the method of Applicants' independent claim 1 allows for the dislocation of at least part of a polymer molecule in the adsorbed state by an external force. There is no disclosure, hint, or suggestion in Bensimon that a dislocation of at least part of a polymer molecule in an adsorbed state is possible. This feature of the method of Applicant's independent claim 1 renders the process novel over Bensimon.

Applicants also submit that the method of independent claim 1 is non-obvious over Bensimon. The method of Bensimon suffers from significant disadvantages. First, all of the molecules on the surface of Bensimon's substrate can only be aligned in the same direction. As the meniscus passes, all of the unanchored portions of the molecules uniformly align perpendicularly to the meniscus. The adjustment of a single molecule cannot be achieved with the method of Bensimon because the meniscus sweeps over all of the molecules. As a result, all of the unanchored portions of the molecules will be similarly aligned with little or no variation. The method of Applicants' claim 1, however, allows for the dislocation of at least part of any molecule in an adsorbed state. Therefore, the shape and position of each individual molecule may be changed or adjusted into any desirable configuration.

Furthermore, the Bensimon method only allows the unanchored portions of the molecules to be aligned once. After the molecules are aligned by the passing of the meniscus, neither the shape or position of the molecules can be changed or adjusted. The method of Applicants' claim 1, however, allows each molecule to be moved or shaped as many times as necessary to achieve a desired configuration. Moreover, Bensimon's method is only capable of providing a linear configuration of the unanchored portions of the molecules. This is a severe disadvantage

because an attempt to move a “molecularly combed” molecule usually results in cutting or breaking. The method of Applicants’ claim 1 allows for the creation of arbitrary configurations of a polymer molecule on a surface. For example, branched and circular polymers, such as circular DNA, may be adjusted by the Applicants’ claimed method into any satisfactory orientation whether it is linear, curved, branched, circular, etc. The Bensimon method also disallows over-stretching of the molecules, such as DNA, because the passing meniscus provides only a weak mechanical force. The method of Applicants’ claim 1, however, allows for the use of physical force to stretch the adsorbed molecules.

A person of ordinary skill in the art would not look to Bensimon’s method, which is only capable a linearly aligning an entire group of molecules without individual adjustment, to derive the Applicants’ claimed method, which allows for individual molecules to be adjusted and re-adjusted into any arbitrary configuration. Aside from impossible, it would not have been obvious for one of ordinary skill in the art to adapt the use of a meniscus as described in Bensimon to develop the method of Applicants’ claim 1. The Bensimon meniscus does not and cannot be altered to allow for the adjustment of each individual molecule’s configuration.

Applicants, therefore, respectfully submit that the subject matter of Applicants’ claim 1 is both novel and non-obvious over Bensimon.

The foregoing is submitted as a complete response to the office action mailed January 29, 2009. If there are any questions that can be resolved by a telephone conference, the Examiner is invited to contact the undersigned attorney at 404-853-8064.

U.S.S.N. 10/527,943
Filed: March 24, 2006
AMENDMENT AND
RESPONSE TO OFFICE ACTION

Respectfully submitted,

/Peter G. Pappas/

Peter G. Pappas
Reg. No. 33,205

April 6, 2009

SUTHERLAND ASBILL & BRENNAN LLP

999 Peachtree Street, NE
Atlanta, Georgia 30309-3996
Telephone: (404) 853-8000
Facsimile: (404) 853-8806

SAB Docket: 17346-0015